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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,307	01/31/2001	Daniel W. Hawtof	Hawtof 7-2	2806

7590 03/18/2003  
Timothy R Krogh  
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EXAMINER

VINCENT, SEAN E

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 03/18/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/762,307

Applicant(s)

HAWTOF ET AL.

Examiner

Sean E Vincent

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1, 3, 4, 7, 10-12 and 17 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hitachi (JP 56-14438 using translation from IDS). The features of applicant's claims can be found in the translation: page 3, lines 12-23; pages 4-6 (all) and the figures.

3. Claim 19 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kilian et al (US 5622750). The features of claim 19 can be found in the figures and col. 5, lines 7-62. Additional related disclosures can be found in col. 3, lines 22-65 and col. 6, lines 8-42.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi.

7. Hitachi taught the subject matter of applicant's claims except for a releasable orifice insert. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the orifice insert of Hitachi releasable because it was well known in the art that releasable parts were more easily replaced at the end of their lifetime.

8. Hitachi taught the subject matter of applicant's claims except for a precision orifice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a precision orifice of 0.011 inches or smaller diameter in Hitachi because the diameter claimed was not critical, merely optimal.

9. Hitachi taught the subject matter of applicant's claims except for a plurality of atomization gas orifices circumferentially spaced around the liquid orifice insert. Note that the manner or method in which a machine is to be utilized is not germane to the issue of patentability of the machine itself, see *In re Casey*, 152 U.S.P.Q. 235 (CCPA 1967). The addition of extra orifices would appear to be mere duplication of the first atomization orifice.

10. Hitachi taught the subject matter of applicant's claims except for a jewel material precision orifice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a jewel because it was well known in the ultrasonic arts to use piezoelectric crystals and the orifice would have had to withstand intense vibrations.

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11. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi in view of Dobbins et al (US 5043002).

12. Hitachi taught the subject matter of applicant's claims except for a siloxane precursor. Dobbins et al taught that it was preferable to use OMCTS or similar precursors when making silica (see col. 5, line 61 to col. 6, line 19). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use OMCTS in Hitachi because Dobbins et al taught that carbon dioxide and water were the byproducts of combustion instead of harmful halide compounds.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi in view of Kilian et al.

14. Hitachi taught the subject matter of applicant's claims except for shaping the burner face to reduce turbulence. Kilian et al taught arrangement of a shroud and controlled flow rates to reduce turbulence at the burner face. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to expect the burner shape of Hitachi to reduce turbulence at the burner face because Kilian et al explained how a shroud structure accomplished this.

15. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian et al.

16. Kilian et al did not disclose rounded orifice rims. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate rounded orifice rims into the burner of Kilian et al because any rim would have been rounded on a small scale.

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17. Kilian et al did not disclose a rim having a rounded radius of  $\frac{1}{4}$  to  $\frac{2}{3}$  of the atomization orifice diameter. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use such a radius because it would not have been critical, merely optimal.

18. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi in view of Takahashi et al (US 4336049).

19. Hitachi taught the subject matter of applicant's claims except for introducing oxygen into the pressurized chamber. Takahashi et al taught a flanged burner structure so that a chamber existed for mixing oxygen, fuel and inert gases with a 'nebulized' precursor (see col. 2, lines 10-53; col. 3, lines 10-32; col. 4, lines 34-61; figures 3 and 4 and examples 1-4). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to introduce oxygen along with the nitrogen into the chamber of Hitachi because Takahashi et al taught that the improved mixing made higher dopant concentrations realizable.

### ***Conclusion***

20. The prior art made of record and not relied upon is cited to further show the state of the art.


21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E Vincent whose telephone number is 703-305-3607. The examiner can normally be reached on M - F (8:30 - 6:00) Second Monday Off.

22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P Griffin can be reached on 703-308-1164. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

23. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Sean E Vincent  
Primary Examiner  
Art Unit 1731

S Vincent  
March 12, 2003